

## PATENT COOPERATION TREATY

CONFIRMATION

From the:  
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference <b>AY/2005.1846</b>		Date of mailing (day/month/year) <b>1 6 JUN 2005</b>
International application No. <b>PCT/SG2005/000106</b>		FOR FURTHER ACTION See paragraph 2 below
International filing date (day/month/year) <b>1 April 2005</b>	Priority date (day/month/year) <b>2 April 2004</b>	
International Patent Classification (IPC) or both national classification and IPC <b>Int. Cl. <sup>7</sup> G06T 7/60, A61B 5/055</b>		
Applicant <b>AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH et al</b>		

## 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

ON DOCKET

February 2, 2006 MV

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

## 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the IPEA/AU <b>AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929</b>	Authorized Officer  <b>ANDREA HADLEY</b> Telephone No. (02) 6283 2222
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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/SG2005/000106

**Box No. I**      **Basis of the opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format  
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**PCT/SG2005/000106**

**Box No. V** Reasoned statement under Rule 43bis.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

**1. Statement**

Novelty (N)	Claims 1-10, 14-29	YES
	Claims 11-13	NO
Inventive step (IS)	Claims 1-10, 14-29	YES
	Claims 11-13	NO
Industrial applicability (IA)	Claims 1-29	YES
	Claims	NO

**2. Citations and explanations:**

Novelty (N) and Inventive Step (IS): Claims 1-29:

The following documents were cited in the International Search Report:

(a) "Automatic Extraction of the Central Symmetry (Mid-Sagittal) Plane from Neuroradiology Images" Yanxi Liu et al. The Robotics Institute, Carnegie Mellon University, Pittsburgh, PA, USA, 1996.

Retrieved on 6 May 2005, from URL;

[http://www.ri.cmu.edu/pub\\_files/pub2/liu\\_yanxi\\_1996\\_1/liu\\_yanxi\\_1996\\_1.pdf](http://www.ri.cmu.edu/pub_files/pub2/liu_yanxi_1996_1/liu_yanxi_1996_1.pdf)

(b) "Robust Midsagittal Plane Extraction from Normal and Pathological 3-D Neuroradiology Images" Yanxi Liu et al. IEEE Transactions on Medical Imaging, Vol. 20, No. 3, March 2001, Pages 175-191.

See the whole document

(c) WO 2003/060827 A1 (KENT RIDGE DIGITAL LABS) 24 July 2003

(d) "Computation of the Mid-Sagittal Plane in 3-D Brain Images" S. Prima et al. IEEE Transactions on Medical Imaging, Vol. 21, No. 2, February 2002, Pages 122-138.

(e) WO 2004/034178 A2 (LABORATORIES FOR INFORMATION TECHNOLOGY) 22 April 2004

Independent claim 11 cannot be considered either novel or inventive when compared with any of cited documents (a) to (d). Each of the cited documents disclose all of the features defined by claim 11. The features defined by claims 12 and 13 are also disclosed.

While the cited documents each disclose a method for obtaining an approximate location for a mid-sagittal slice from a plurality of slices of brain volume data, where the plurality of slices is generally oriented parallel to the mid-sagittal plane and positioned along an axis normal to the mid-sagittal plane, as defined by claim 11, none of the cited prior art disclose determining a candidate sagittal direction for a brain image defined in three-dimensional space along three directions orthogonal to each other, as is defined by claim 1. The cited documents also do not disclose determining a candidate sagittal direction where the brain image is defined by brain volume data in two directions oriented at an angle to each other, as defined by claim 29. Therefore, claims 1 to 10 and 14 to 29 are considered both novel and inventive when compared with the cited prior art.

Document (e) does not disclose the invention defined by the claims, but was cited since it is relevant to the art.